Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

 We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

PROBLEMS.

111. By Prof. J. H. Kershner, Mercersburg, Pa. — Given

$$\frac{x+y}{x-y} + \frac{x-y}{x+y} = 3\tfrac{1}{3} \; \ldots \; (1), \qquad x^2 + y^2 = 45, \; \ldots \ldots (2)$$

to be solved without the use of an auxiliary unknown.

112. By Prof. M. L. Comstock, Galesburg, Ill. — Wishing to know the height of a tower standing at the summit of a slope on the opposite side of the street, and not being able to leave my room, I measured the angles of elevation of the bottom and top of the tower 40°, 70°, respectively, and the angle of depression of the foot of the slope 40°; and a passer-by carried a tape-line across, giving me the distance from my point of observation to the foot of the slope, 50 feet. I knew the angle made by the face of the slope with the horizontal plane of the street to be 60°. From these data, I found the height of the tower, having given, log tan 20° equal 9.651066, log sin 50° = 9.884254, log 10 = 1, and log 171072 = 5.233188.

113. By Marcus Baker, U. S. C. S., Washington, D. C. — The sides of a plane triangle are in arithmetical progression, common difference d, and the angle opposite the least side is one third of the angle opposite the greatest side; construct the triangle.

114. By Dr. Nelson. — Required the shortest proof of the *Pons Asinorum*. (Eucl. 47, I.)

115. By the Editor. — Show, by a geometrical construction, that the results obtained by Miss Ladd and Prof. Chase, in their solutions of Prob. 106, are the same.

116. By Artemas Martin, Erie, Pa. — A sector less than a semicircle is cut at random from a given circle, and a circle inscribed in it. Find the average area of this inscribed circle.

117. By F. P. Matz, B. E., Kutztown, Pa. — Required the average area of all the acute-angled triangles that can be inscribed in a given ellipse.

118. By Prof. Johnson. — Find the general relation which exists between the four sides and the two diagonals of any quadrilateral. Consider particularly the case when the opposite sides are equal.

Query 1. By T. P. Stowell, Rochester, N. Y. — Which is the most effective; a break applied at the top or the side of a car wheel in motion?

Query 2. By Cadet E. S. Farrow, West Point, N. Y. — Can the equation $x^n + \sqrt[n]{x} = a$, be solved?